CORRES CONTROL
OUTGOING LTR NO

DOE ORDER #

02 RF 00057

DIST	LTR	ENC
BRAILSFORD, M D		
FERRERA, D W	X	
FERRI, M S		
FULTON, J C		
GIACOMINI, J		
HALL, L		
MARTINEZ, L A		
PARKER, A M.		
POWERS, K.		
SCOTT, G K		
SHELTON, D C	X	
SPEARS, M S		
TRICE, K D		
VOORHEIS, G M		
BUTLER, J L	X	X
NORLAND, L	X	
SERREZE, S	X	
COR. CONTROL	X	X
ADMIN. RECORD	X	X
WASTE REC. CTR		
TRAFFIC		
PATS/130		
CLASSIFICATION		
UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE
Exemption – CEX -072-99

Date

IN REPLY TO RFP CC NO

ACTION ITEM STATUS

☐ PARTIAL/OPEN

☐ CLOSED

LTR APPROVALS

ORIG & TYPIST INITIALS

1/20

KAISER•HILL COMPANY

January 7, 2002

02-RF-00057

Ms Norma Castaneda
Environmental, Safety and Health
Program Assessment
DOE, RFFO

TRANSMITTAL OF DRAFT RFCA STANDARD OPERATING PROTOCOL FOR ROUTINE SOIL REMEDIATION FY2002 NOTIFICATION# 02-01 – JLB-001-01

Attached please find six (6) copies of each document, Draft of RFCA Standard Operation Protocol for Routine Soil Remediation FY2002 Notification # 02-01, for submittal to the Colorado Department of Public Health and Environment (CDPHE) and the U S Environmental Protection Agency (EPA) for their review

If you have any questions, please contact me at extension 5245

J Lane Butler
Manager, Environmental Restoration Programs

JLB dm

Orig and 1 cc – Norma Castaneda

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DRAFT RFCA
STANDARD OPERATING PROTOCOL
FOR ROUTINE SOIL REMEDIATION
FY2002
NOTIFICATION# 02-01

January 2002

2

TABLE OF CONTENTS

1 0 INTRODUCTION .. 1
2 0 IA GROUP 100-4 1
2 1 Contaminants of Concern 1
2 2 Project Assumptions 1
2 3 Stewardship Analysis, 6
2 3 1 Proximity to Other Contaminant Sources 6
2 3 2 Surface Water Protection 6
2 3 3 Monitoring 7
2 3 4 Stewardship Actions and Recommendations 8
2 4 Interim Remediation Goals, 8
2 5 Treatment (if necessary), 8
2 6 Project Specific Monitoring (if any), 9
2 7 RCRA Units and Intended Waste Disposition 9
2 8 Administrative Record Documents 9
2 9 Projected Schedule . 9
3 0 IA GROUP 100-5 9
3 1 Contaminants of Concern 11
3 2 Project Assumptions 11
3 3 Stewardship Analysis, 11
3 3 1 Proximity to Other Contaminant Sources 11
3 3 2 Surface Water Protection 11
3 3 3 Monitoring . . 12
3 3 4 Stewardship Recommendations 12
3 4 Interim Remediation Goals, . 12
3 5 Treatment (if necessary), 12
3 6 Project Specific Monitoring (if any), 12
3 7 RCRA Units and Intended Waste Disposition 13
3 8 Administrative Record Documents 13
3 9 Projected Schedule 13
4 0 REFERENCES 13

LIST OF FIGURES

Figure 1 ER RSOP Notification #02-01 IHSS Group Location Map 2
Figure 2 IHSS Group 100-4 AOC, Tier I, and Tier II Exceedances 3
Figure 3 IHSS Group 100-4 OPWL, NPWL, Sumps, and Source Pits 4
Figure 4 IHSS Group 100-4 RCRA Units 5
Figure 5 IHSS Group 100-5 Potential Remediation Map 10

LIST OF TABLES

Table 1 FY02 Potential Remediation Areas 1
Table 2 Characterization Summary 7

3

ACRONYMS

AL	Action Level
COC	Contaminant of Concern
cy	cubic yards
ER	Environmental Restoration
ER RSOP	Environmental Restoration RSOP for Routine Soil Remediation
FY	Fiscal Year
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
NPWL	New Process Waste Line
OPWL	Old Process Waste Line
PAC	Potential Area of Concern
pCi/g	picocurie per gram
PCOC	Potential Contaminant of Concern
POC	Point of Compliance
POE	Point of Evaluation
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RSOP	Rocky Flats Compliance Agreement
UBC	Under Building Contamination
VOC	volatile organic compound

4

1.0 INTRODUCTION

This Environmental Restoration (ER) Rocky Flats Compliance Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2002) Fiscal Year (FY)02 Notification includes the notification to remediate Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern (PACs), and Under Building Contamination (UBC) Sites at the Rocky Flats Environmental Technology Site (RFETS) Industrial Area (IA) during FY02

Proposed remediation sites covered under ER RSOP Notification #02-01are listed in Table 1 The locations of the proposed remediation sites are shown on Figure 1

Table 1
FY02 Potential Remediation Areas

		PCOCs	Media	Estimated Remediation Volume
100-4	UBC123 – Health Physics Laboratory	Lead	Subsurface Soil	1 cubic yards (cy(
	Original Process Waste Line (OPWL)/ New Process Waste Line (NPWL)	Radionuclides	Pipeline and soil	930 linear feet
	Sumps and Source Pits	Radionuclides	Debris and soil	8 cy
100-5	100-609 – Building 121 Security Incinerator	Dioxin/Furan	Surface Soil	<1cy

2.0 IA GROUP 100-4

IHSS Group 100-4 includes UBC 123 - Health Physics Laboratory, IHSS 148 – RCRA Unit 40, 100-603 – Building 123 Bioassay Waste Spill, and 100-611 – Building 123 Scrubber Solution Spill The IHSS Group 100-4 AOC, Tier I and Tier II exceedances are shown on Figure 2 Original Process Waste Lines (OPWL), New Process Waste Lines (NPWL), sumps, and source pits are shown in Figure 3 RCRA Units are shown on Figure 4

2.1 Contaminants of Concern

Contaminants of concern (COCs) at IHSS Group 100-4 were determined based on data collected during characterization of UBC 123, summarized in the Final Data Summary Report for the Characterization of UBCs 123 and 886, (DOE 2001a) and data collected during previous studies (DOE 2001b and DOE 2000)

Lead and 2-4 Dinitrotoluene are the COCs above RFCA Tier I Action Levels (ALs)

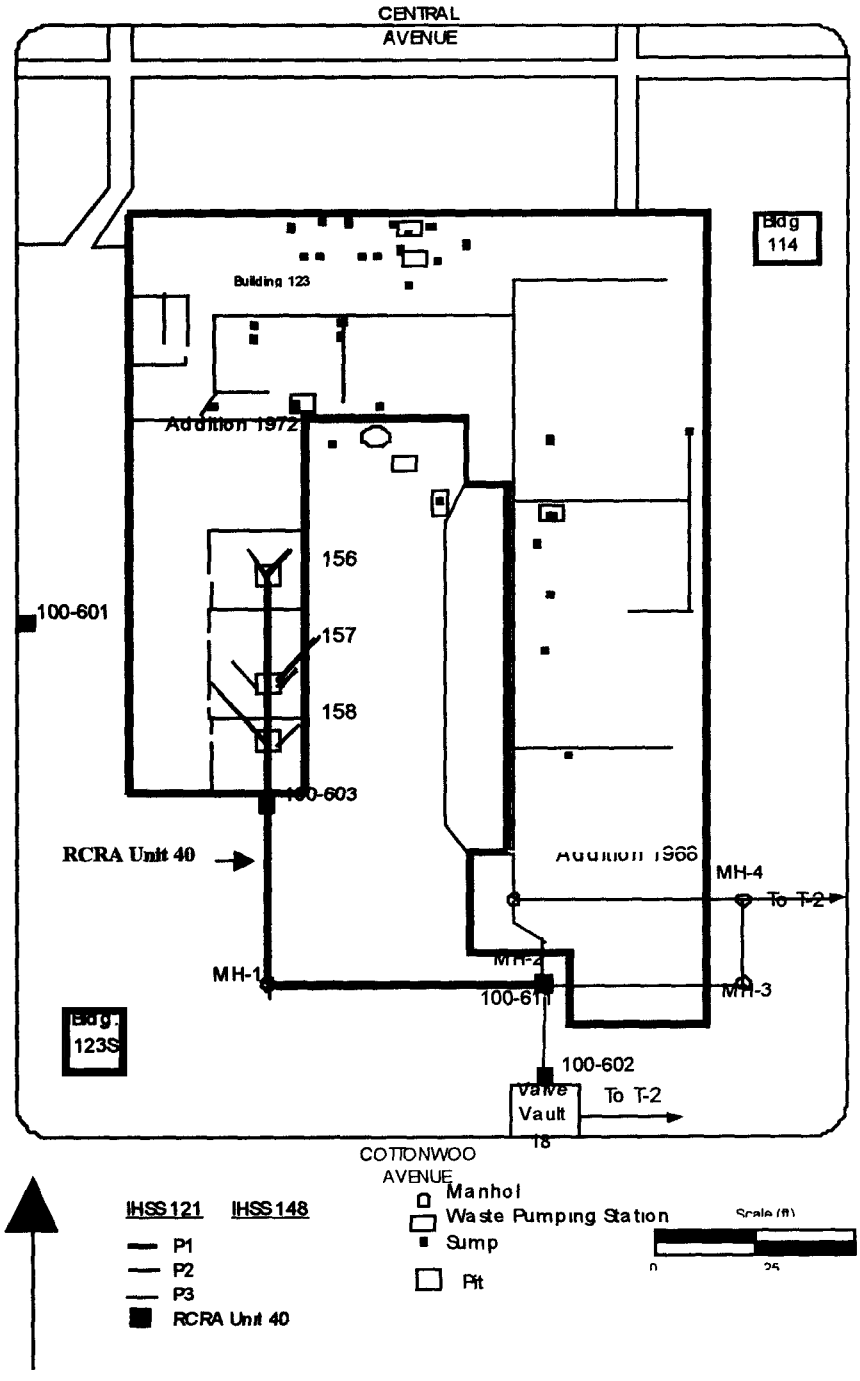
2.2 Project Assumptions

The following unique features and remediation challenges are present at IHSS Group 100-4

- The UBC 123 floor slab,
- The cesium source pit,

5

Figure 4
UBC 123 RCRA Unit 40



9

- Subsurface soil with lead analytical results greater than Tier I ALs,
- Surface soil with 2-4 Dinitrotoluene analytical results greater than Tier I ALs,
- UBC 123 has several sumps and other structures below grade,
- Resource Conservation and Recovery Act (RCRA) Unit 40 includes portions of OPWL and NPWL The pipe chases and sump in Room 156, 157, and 158 were closed in accordance with the Closure Plan for Building 123 Components of RCRA Unit 40 (DOE 1997) Closures of the sump in Room 124 and the underground pipe from Room 158 did not meet the closure performance standards and will be addressed as part of this accelerated action (DOE 1998),
- Portions of OPWL P-1, P-2, and P-3 are beneath the slab, and portions of P-1 and valve vault are within PAC 100-602, and
- Confirmation samples will be collected in accordance with the IASAP (DOE 2001b)

2.3 Stewardship Analysis;

This stewardship analysis is based on existing data as of October 1, 2001

2.3.1 Proximity to Other Contaminant Sources

IHSS Group 100-4 is in the RFETS IA Nearby potential contaminant sources are IHSS Groups 100-1, 100-2, 400-8 and IHSS Group 100-4 is also bordered by parts of IHSS Group000-2 Figure 1 of the Industrial Area Sampling and Analysis Plan (IASAP) (DOE 2001b), illustrates these relationships

2.3.2 Surface Water Protection

Is there a pathway to surface water from potential erosion to streams or drainages?

There are no surface water features in the vicinity of IHSS Group 100-4 This site is in a flat lying area not prone to erosion

Do characterization data indicate there are contaminants in surface soil?

Arsenic was greater that the Tier II AL but less than background

Table 2 lists radionuclide data from IHSS Group 100-4 along with background values and RFCA ALs for comparison

Table 2
Characterization Summary

Analyte	Maximum Result (Uncertainty) (pCi/g)	Background + 2 Standard deviations (pCi/g)	Tier II AL (pCi/g)	Tier I AL (pCi/g)
Americium-241	1 14	0 0227	38	209
Plutonium-239/240	0 445	0 066	252	1088
Uranium-233/234	1 87	2 64	307	1627
Uranium-235	0 114	0 12	24	113
Uranium-238	1 52	2	103	506

Do monitoring results from Points of Evaluation (POEs) or Points of Compliance (POCs) indicate that there are surface water impacts from the area under consideration?

There are no surface water POEs or POCs near IHSS Group 100-4 Therefore it is difficult to attribute potential surface water impacts at this POE to IHSS Group 100-4

Is the IHSS Group in an area with high erosion potential, based on the 100-Year Average Erosion Map?

No

2.3.3 Monitoring

Do monitoring results from POEs or POCs indicate there are groundwater or surface water impacts from the area under consideration?

There are no data from surrounding wells indicating groundwater was impacted at this site

Can the impact be traced to a specific IHSS Group?

No Contaminants in surface water monitoring stations cannot be traced to IHSS Group 100-4

Are additional monitoring stations needed?

No There is no existing evidence that COCs from this IHSS Group have impacted groundwater or surface water

Can existing monitoring locations be deleted if additional remediation is conducted?

Not applicable

2.3.4 Stewardship Actions and Recommendations

Based on the information in sections 2 3 1, 2 3 2, and 2 3 3, do not remediate lead or 2-4 Dinitrotoluene locations beyond Tier I ALs

Implement near-term institutional controls until final closure and stewardship decisions are implemented including the following

- Signs and barriers

Implement long-term stewardship actions including the following

- Federal ownership and,
- Land use restrictions

These recommendations may change based on in-process remediation activities and other future Site remedial activities

2.4 Interim Remediation Goals;

The interim remediation goals for IHSS Group 100-4 are

- Remove the UBC 123 concrete slab, disposition concrete according to the RSOP for Recycling Concrete (DOE 1999),
- Remove sumps and remediate associated soil to below Tier I ALs at locations noted on Figure 3,
- Remove cesium source pit and remediate associated soil to below Tier I ALs noted on Figure 3,
- Remove lead (Figure 2) in subsurface soil to below RFCA Tier I ALs,
- Remove 2-4 Dintrotoluene (Figure 2) in surface soil to below RFCA Tier I ALs,
- Remove NPWL beneath and south of UBC123 to as close to Valve Vault 18 as possible (Figures 3 and 4); and
- Remove OPWL (Figure 3)

2.5 Treatment (if necessary);

Not applicable

2.6 Project Specific Monitoring (if any);

High volume air samplers may be used at the remediation area consistent with work controls to determine airborne radioactivity concentrations Approximate locations of air samplers are shown of Figure 3

2.7 RCRA Units and Intended Waste Disposition

RCRA Unit 40 includes portions of OPWL and NPWL (Figure 4) The pipe chases and sumps in Room 156, 157, and 158 were closed in accordance with the Closure Plan for Building 123 Components of RCRA Unit 40 (DOE 1997) and will be removed Closure of the sump in Room 124 and the underground pipe from Room 158 did not meet the closure performance standards and will be addressed as part of this accelerated action (DOE 1998) It is anticipated that waste from these units will be classified as low-level mixed waste

2.8 Administrative Record Documents

DOE, 1997, Closure Plan for Building 123 Components of RCRA Unit 40 (Closure Plan), Rocky Flats Environmental Technology Site, Golden, Colorado, November

DOE, 1998, Final Close-Out Report Building 123 Decommissioning Project, Rocky Flats Environmental Technology Site, Golden Colorado, September

DOE, 2000, Industrial Area Data Summary Report, Rocky Flats Environmental Technology Site, Golden, Colorado, September

DOE, 2001, Final Data Summary Report for the Characterization of UBCs 123 and 886, Rocky Flats Environmental Technology Site, Golden, Colorado, September

DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June

DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology, Golden, Colorado

2.9 Projected Schedule.

Remediation of IHSS Group 100-4 will begin in January, 2002

3.0 IA GROUP 100-5

IHSS Group 100-5 includes PAC 100-609 – Building 121 Security Incinerator A map of IHSS Group 100-5 is shown in Figure 5 along with the potential remediation area

3.1 Contaminants of Concern

Potential contaminants of concern (PCOCs) at IHSS Group 100-5 are based on process knowledge and will be determined during in-process characterization PCOCs include dioxin and furan, for which no RFCA ALs have been established

3.2 Project Assumptions

Unique features and remediation challenges at IHSS Group 100-5 include the following

- Two concrete slabs cover this area,
- After slab removal, characterization, and remediation (if necessary), a gravel cover will be used for temporary stabilization instead of revegetation, and
- Concrete will be recycled according to the RSOP for Recycling Concrete (DOE 1999)

3.3 Stewardship Analysis;

This stewardship analysis is based on existing data as of October 1, 2001

3.3.1 Proximity to Other Contaminant Sources

IHSS Group 100-5 is in the RFETS IA Nearby potential contaminant sources are UBCs 122 and 125 Figure 1 of the IASAP (DOE 2001b) illustrates these relationships

3.3.2 Surface Water Protection

Is there a pathway to surface water from potential erosion to streams or drainages?

There is a small ditch northwest of IHSS Group 100-5 This surface water feature is upgradient of IHSS Group 100-5 This site is in a flat lying area not prone to erosion

Do characterization data indicate there are contaminants in surface soil?

Process knowledge indicates that potential contaminants of concern will be near method detection limits

Do monitoring results from POEs or POCs indicate that there are surface water impacts from the area under consideration?

There are no surface water POEs or POCs near IHSS Group 100-5 Therefore it is difficult to attribute potential surface water impacts at this POE to IHSS Group 100-5

Is the IHSS Group in an area with high erosion potential, based on the 100-Year Average Erosion Map?

No

15

3.3.3 Monitoring

Do monitoring results from POEs or POCs indicate there are groundwater or surface water impacts from the area under consideration?

There is no data from surrounding wells indicating groundwater was impacted from this site

Can the impact be traced to a specific IHSS Group?

No, contaminants in surface water monitoring stations cannot be traced to IHSS Group 100-5

Are additional monitoring stations needed?

No, there is no existing evidence that PCOCs from this IHSS Group have impacted groundwater or surface water

Can existing monitoring locations be deleted if additional remediation is conducted?

Not applicable

3.3.4 Stewardship Recommendations

Remediate to method detection limits or to a level agreed upon through the RFCA consultative process

- Remediation to method detection limits or near detection limits will likely eliminate any need for stewardship actions

These recommendations may change based on in-process remediation activities and other future Site remedial activities

3.4 Interim Remediation Goals;

The interim remediation goals for IHSS Group 100-5 include the following

- Remove the concrete slabs,
- Remediate soil if dioxins or furans are found at levels greater than method detection limits or to a level agreed upon through the RFCA consultative process

3.5 Treatment (if necessary);

Not applicable

3.6 Project Specific Monitoring (if any);

It is not anticipated that air sampling will be required at this site

3.7 RCRA Units and Intended Waste Disposition

Not applicable

3.8 Administrative Record Documents

DOE, 2000, Industrial Area Data Summary Report, Rocky Flats Environmental Technology Site, Golden, Colorado, September

DOE, 1999, RFCA Standard Operating Protocol for Recycling Concrete, Rocky Flats Environmental Technology Site, Golden, Colorado, September

DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June

DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology, Golden, Colorado

3.9 Projected Schedule.

Remediation of IHSS Group 100-5 will begin in January, 2002

4.0 REFERENCES

DOE, 1997, Closure Plan for Building 123 Components of RCRA Unit 40 (Closure Plan), Rocky Flats Environmental Technology Site, Golden, Colorado, November

DOE, 1998, Final Close-Out Report Building 123 Decommissioning Project, Rocky Flats Environmental Technology Site, Golden Colorado, September

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DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology, Golden, Colorado

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18

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No, there is no existing evidence that PCOCs from this IHSS Group have impacted groundwater or surface water

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- Remove the concrete slabs,
- Remediate soil if dioxins or furans are found at levels greater than method detection limits or to a level agreed upon through the RFCA consultative process

3.5 Treatment (if necessary);

Not applicable

3.6 Project Specific Monitoring (if any);

It is not anticipated that air sampling will be required at this site

19

3.7 RCRA Units and Intended Waste Disposition

Not applicable

3.8 Administrative Record Documents

DOE, 2000, Industrial Area Data Summary Report, Rocky Flats Environmental Technology Site, Golden, Colorado, September

DOE, 1999, RFCA Standard Operating Protocol for Recycling Concrete, Rocky Flats Environmental Technology Site, Golden, Colorado, September

DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June

DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology, Golden, Colorado

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DOE, 1998, Final Close-Out Report Building 123 Decommissioning Project, Rocky Flats Environmental Technology Site, Golden Colorado, September

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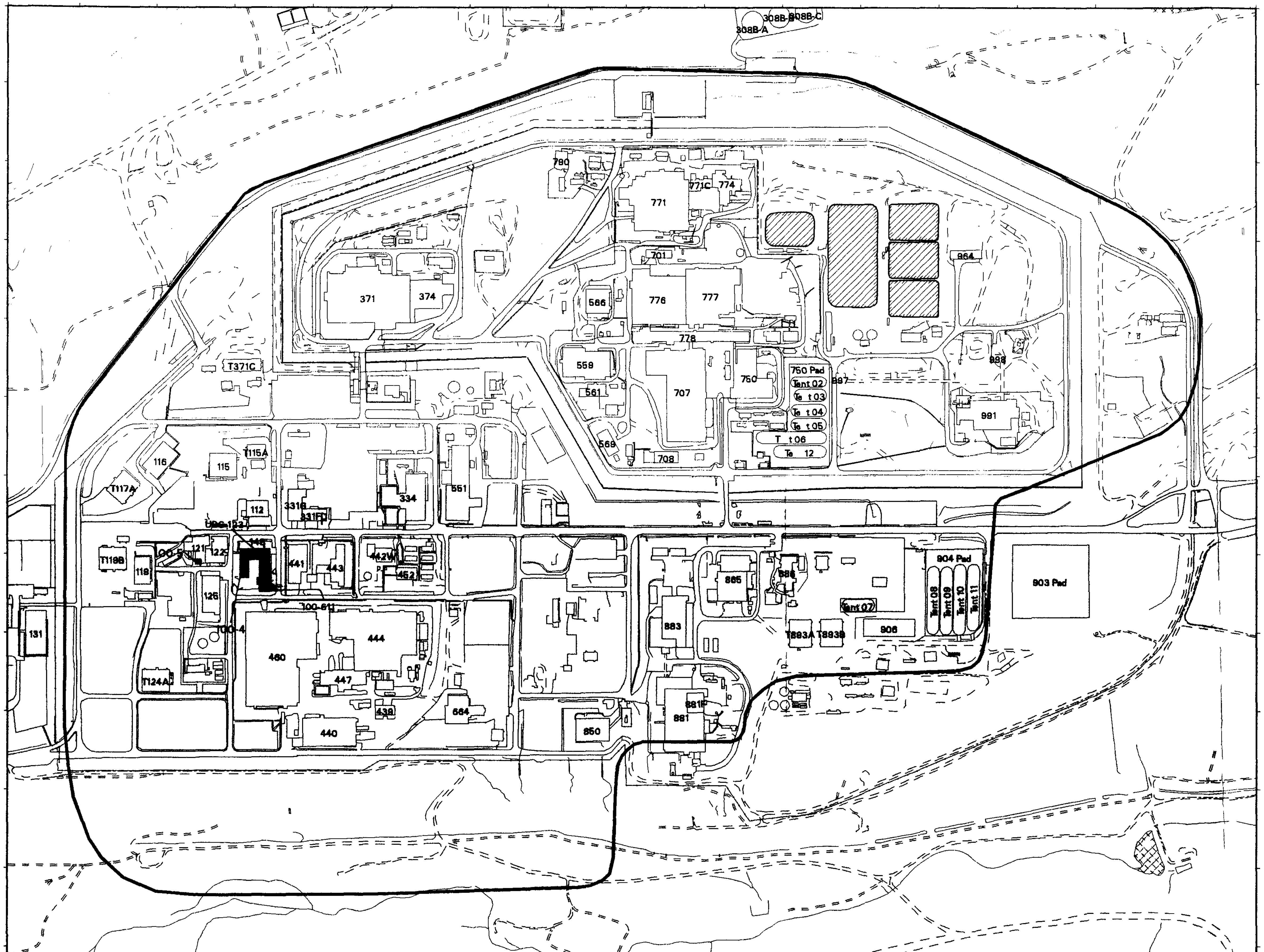


Figure 1
IA Groups Location Map

EXPLANATION

IHSS Groupings

- 100 4
- 100 5

Standard Map Features

- Build g d the tr tu
- Sol E p t on Pond (SEPs)
- Lakes nd pond
- Str m d tche th d a ag f tu e
- F n d th b i rs
- Paved d
- Di t ad
- I du tr I A Ope bl U it Bound ry

DATA SOURC BASE FEATURES
PACs
Individu a ardous Substance Sites SS

Scale = 1 6240
1 nch pr se t 520 feet

0 0 400 80

Stat Pl n Co dinat Pr jectio
Colo ad Ce tral Z n
Dat m NAD27

U S Department of Energy
Rocky Flats Environmental Technology Site

IS Dept. 303-966-7707

Prepared by
DynCorp

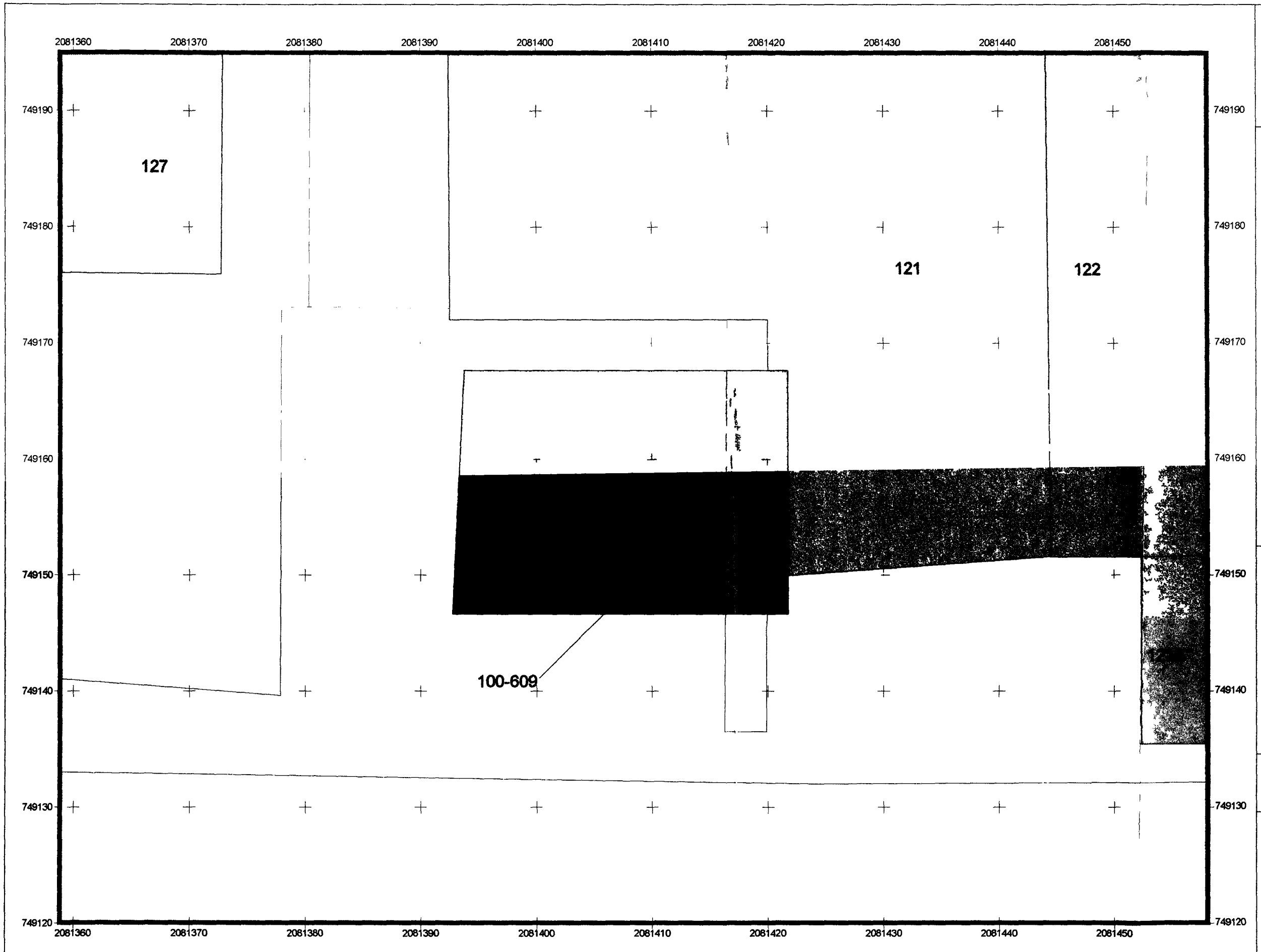
Prepared fo
KAISER HILL

MAP ID 02-0121

January 07, 2002

NT S /p j /fy2002/02 0121/i 100 5 b fig ml

Figure 5
IHSS Group 100 5
Potential Remediation Area



KEY

- FY 2002 geostatistical sampling location
- FY 2002 biased sampling location
- FY 2002 statistical sampling location
- Random start 36-ft triangular grid line
- FY 2002 IHSS location
- FY 2002 PAC location
- FY 2002 UBC location
- Building/structure
- Paved area
- Dirt road
- Stream ditch or other drainage feature

Existing soil sampling locations (50-ft buffer)

- Both subsurface and surface soil
- Subsurface soil
- Surface soil

N

Scale = 1 100

4 0 4 8 12 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by
WATERSTONE

Prepared for
KAISER HILL

statgrid apr

9 October 2001

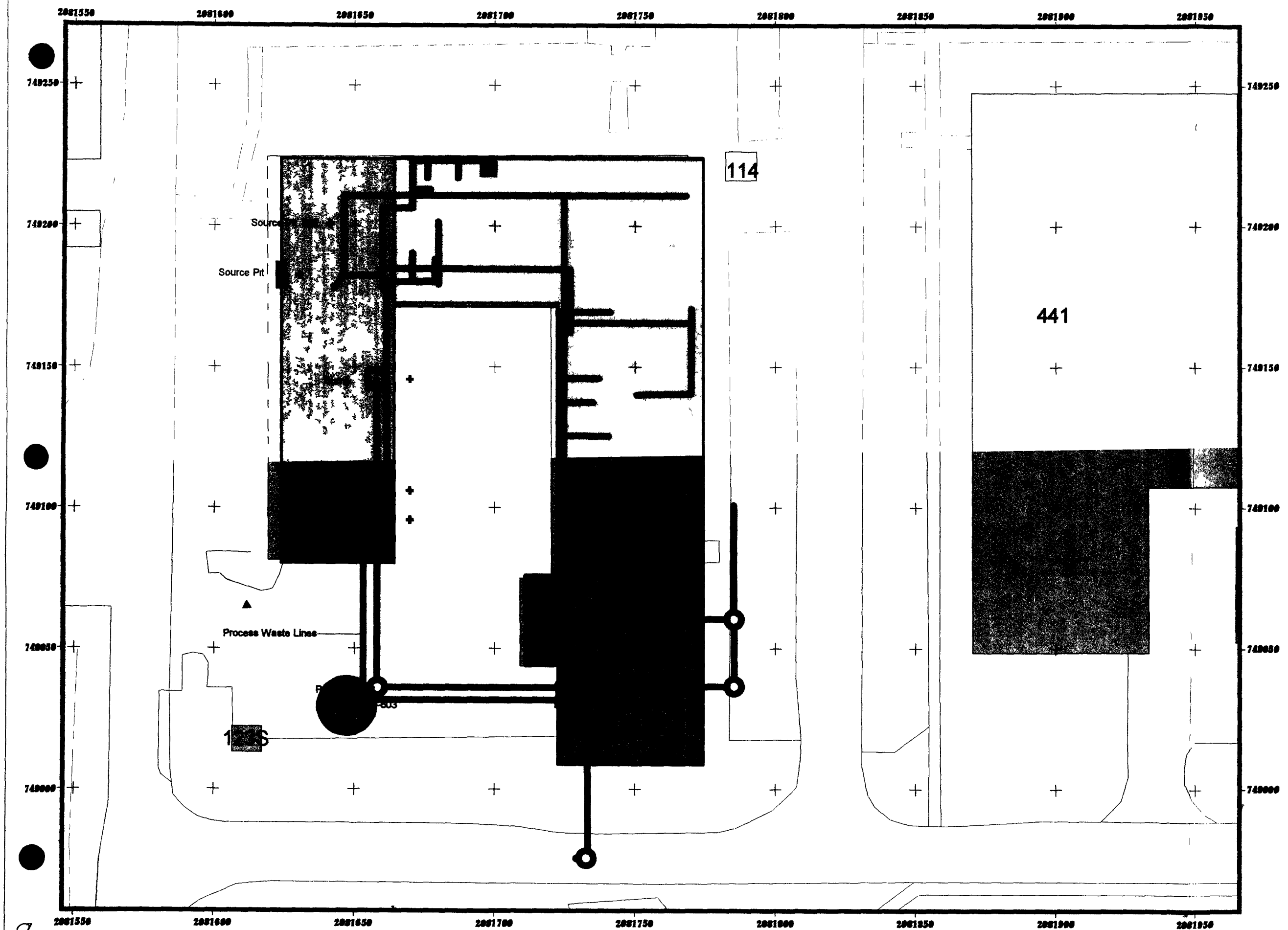


Figure 3
IHSS Group 100-4
OPWL, NPWL, Sumps, and Source Pits

KEY

- Process Waste Lines
- Potential Air Sampler Location
- FY 2002 IHSS locations
- FY 2002 PAC locations
- FY 2002 UBC locations
- Buildings and other structures
- Paved areas
- Dirt roads
- Streams ditches or other drainage features

N

Scale = 1 400

25 0 25 50 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

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Rocky Flats Environmental Technology Site

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KAISER HILL

notification apr

January 2002

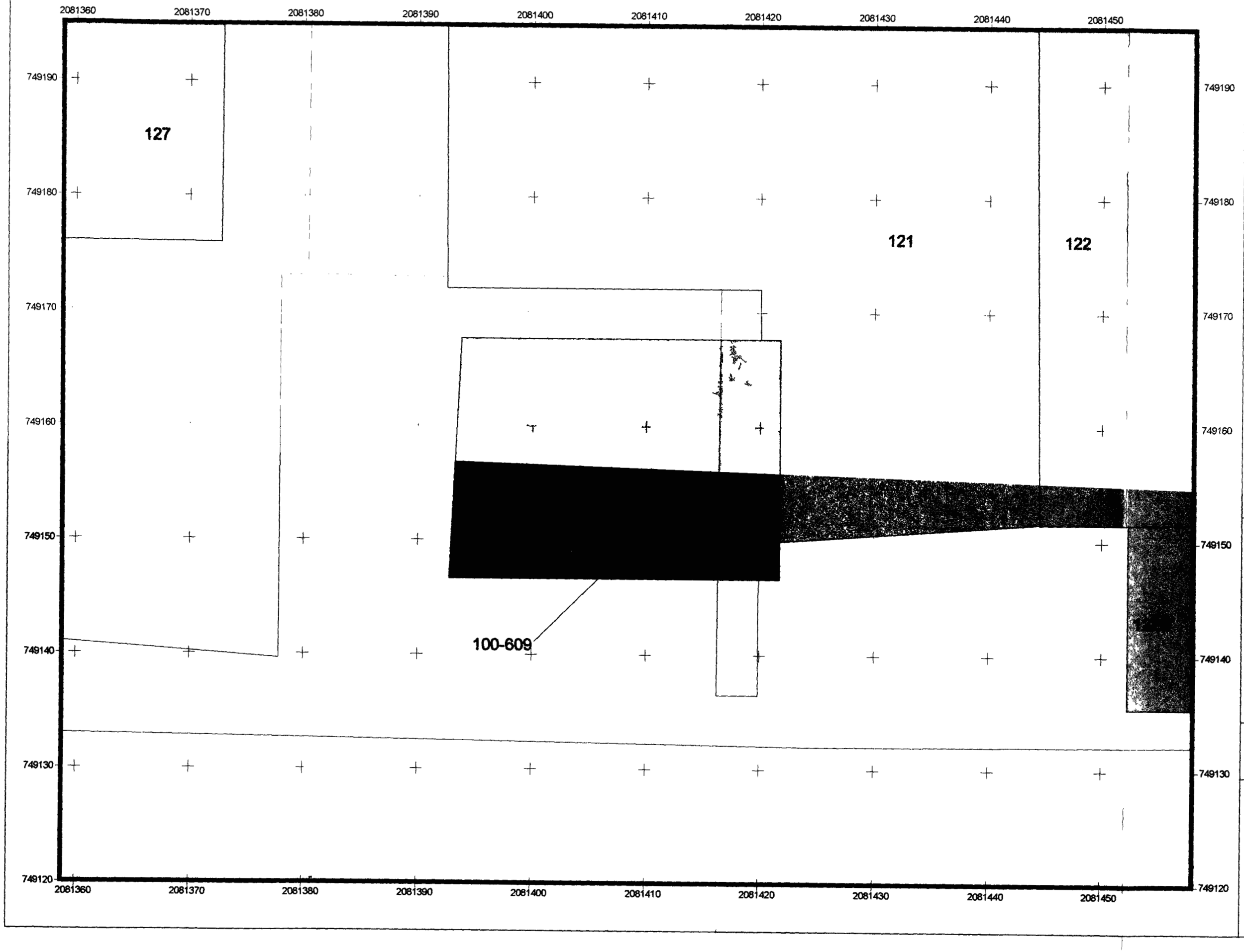

Figure 5
IHSS Group 100 5
Potential Remediation Area

KEY

- FY 2002 geostatistical sampling location
- FY 2002 biased sampling location
- FY 2002 statistical sampling location
- Random start 36-ft triangular grid line
- FY 2002 IHSS location
- FY 2002 PAC location
- FY 2002 UBC location
- Building/structure
- Paved area
- Dirt road
- Stream ditch or other drainage feature

Existing soil sampling locations (50 ft buffer)

- ○ Both subsurface and surface soil
- △ Subsurface soil
- ■ Surface soil

N

Scale = 1 100

4 0 4 8 12 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

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9 October 2001